



DESCRIPTION

The General Instrument Master Tone Generator is a digital tone generator which produces, from a single input frequency, a full octave of twelve frequencies on twelve separate output terminals.

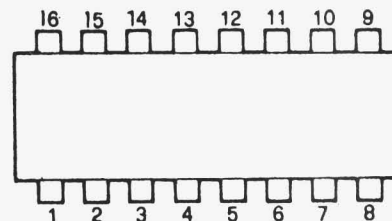
The M.T.G. consists of twelve divider circuits which divide the input by an exact integer to produce a chromatic scale of twelve notes. When used in conjunction with an oscillator and frequency dividers, a system may be configured which generates all the frequencies required by an electronic music synthesizer.

FEATURES

- Wide Input Frequency Range 100kHz to 2.5MHz
- Zener Protected Input
- Low Impedance Push-Pull Outputs
- Full Musical Scale in One Chip

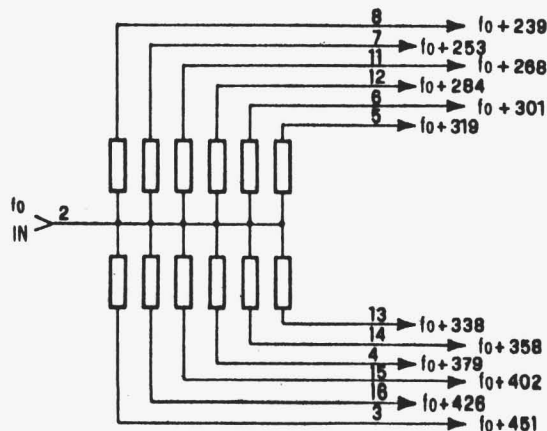
PACKAGE INFORMATION 16 LEAD DIP (PLASTIC)

PIN	FUNCTION	PIN	FUNCTION
1	V _{SS}	9	V _{GG}
2	INPUT f_o	10	V _{DD}
3	$\div 451$	11	$\div 268$
4	$\div 379$	12	$\div 284$
5	$\div 319$	13	$\div 338$
6	$\div 301$	14	$\div 358$
7	$\div 253$	15	$\div 402$
8	$\div 239$	16	$\div 426$



TOP VIEW

BLOCK DIAGRAM



MAXIMUM GUARANTEED RATINGS (Note 1)

All Pin Voltages with Respect to V_{SS}	-30V to +0.3V
Storage Temperature	-55° C to +150° C
Operating Temperature	0° C to +70° C

D. C. ELECTRICAL CHARACTERISTICS

Standard Conditions (Unless otherwise specified)

$V_{DD} = -12 \pm 1V$; $V_{GG} = -27.5 \pm 1.5V$ and $V_{SS} = GND$

CHARACTERISTICS	MIN.	TYP	MAX.	UNITS	CONDITIONS
Input Leakage			10	μA	at 27V
Input Positive Level	+0.3		-2	V	
Input Negative Level	-10.0		-20	V	
Output on Impedance to V_{DD}			3500	Ohms	See Note 2
Output on Impedance to V_{SS}			3500	Ohms	
V_{GG} Power Consumption			4	mA	
V_{DD} Power Consumption			20	mA	

A. C. ELECTRICAL CHARACTERISTICS

Standard Conditions (Unless otherwise specified)

$V_{DD} = -12 \pm V$; $V_{GG} = -27.5 \pm 1.5 V$ and $V_{SS} = GND$

CHARACTERISTICS		MIN.	TYP.	MAX.	UNITS	CONDITIONS
Input Frequency	f_o	0.1		2.5	MHz	
Input Capacitance			5	10	pF	1MHz
Input Positive Level Width	t_p					
Input Negative Level Width	t_n					
Output Rise Time	t_r		1		μs	no load
Output Fall Time	t_f		1		μs	no load

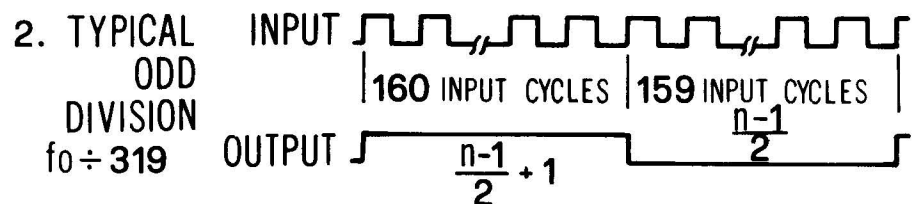
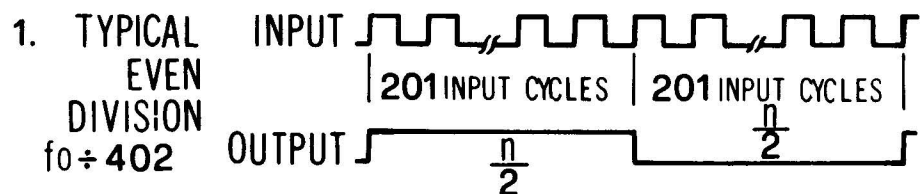
Note 1 - Stresses above those listed under "Maximum Guaranteed-Ratings" may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other condition above those indicated in the operational sections of this specification is not implied.

Note 2 - Output Impedance measurements are made with 1.0V across the device to be measured with 20K Ω load to -6V.

TIMING DIAGRAM

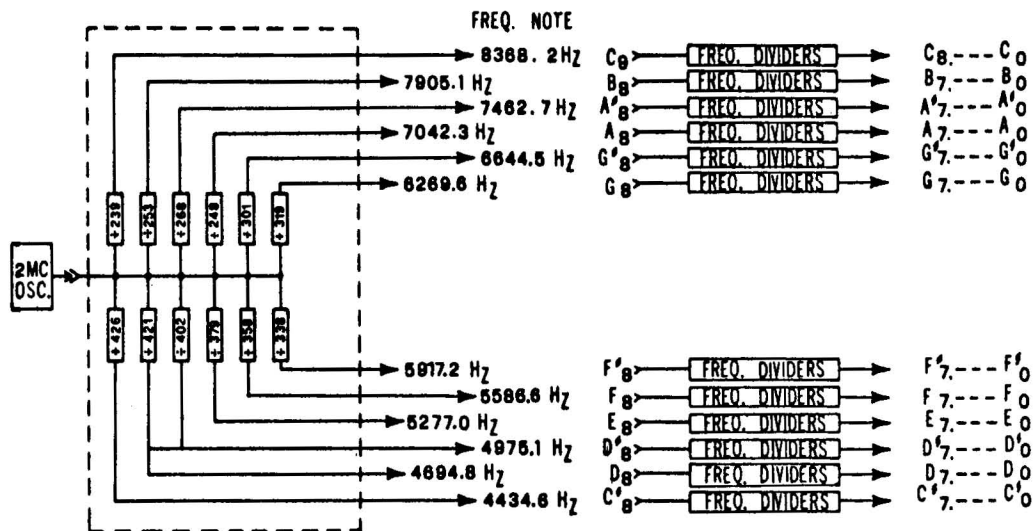


TIMING EXAMPLES

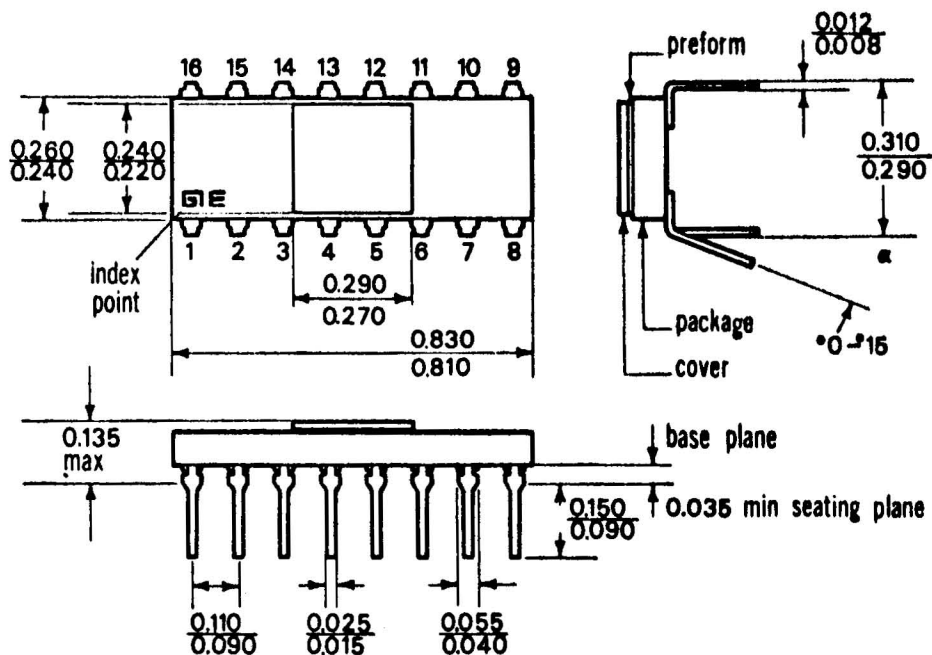


n = THE DIVISION NUMBER

TYPICAL APPLICATION



PACKAGE -16 LEAD DIP



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